

Flat-foot or Splay-foot

(Valgus)

By HENRY HOLDEN.

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FLAT-FOOT OR SPLAY-FOOT (VALGUS). BY HENRY HOLDEN.

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HOLDEN BROTHERS

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FLAT-FOOT OR SPLAY-FOOT.

What is "Flat-foot?"

IN answering this enquiry, it is to be borne in mind that the word "flat-foot" is somewhat misleading, but for the sake of convenience we will adopt it.*

"Flat-foot," so called, is the depression or dropping down of the inner side of the foot and of the infalling of the inner ankle. It is common to hear the arch of the foot spoken of, but it is by no means certain if the foot be an arch, and possibly that simile may be erroneous. Some distinguished anatomists have abandoned the arch theory as appertaining to the human foot.†

Flat-foot is both a disease and a deformity. The group of bones lying in that part of the foot immediately under the leg and a little in front of that position, are kept in

* "'Flat-foot" is a term which might be dropped with advantage. I would suggest fixed adduction of the foot."—W. ARBUTHNOT LANE, M.S., *Clinical Journal*, August 7th, 1895.

"The weak foot."—ROYAL WHITMAN, M.D., New York.

"Pronated foot."—DR. DANE, American Orthopædic Association.

† "It is an unfortunate thing that anatomists have employed the term 'arches' to the human foot."—W. ARBUTHNOT LANE, M.S., *Clinical Journal*, August 7th, 1895.

"By dismissing the artificial division into transverse and longitudinal arches, there is less temptation to strive to adapt the mechanism of the instep to that of an ordinary arch. It is, in fact, in no way comparable."—J. W. WALSHAM, M.R.C.S., *Deformities of the Feet*, p. 6.

Fig. 1.
Inner aspect, normal foot.

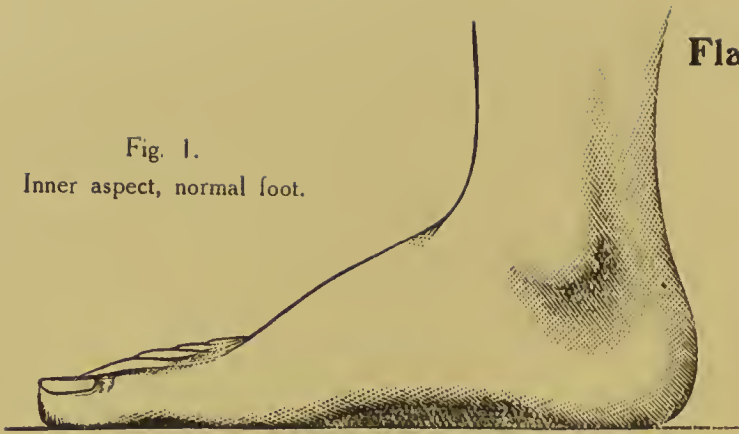


Fig. 2.
Position of bones in normal foot,
inner aspect.

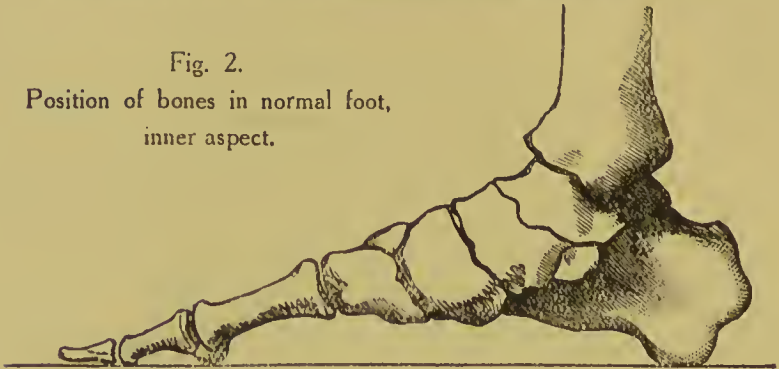


Fig. 3.
Inner aspect, Flat-foot.

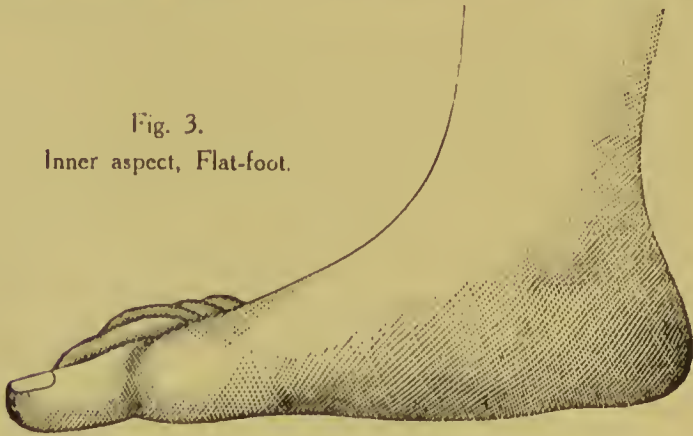
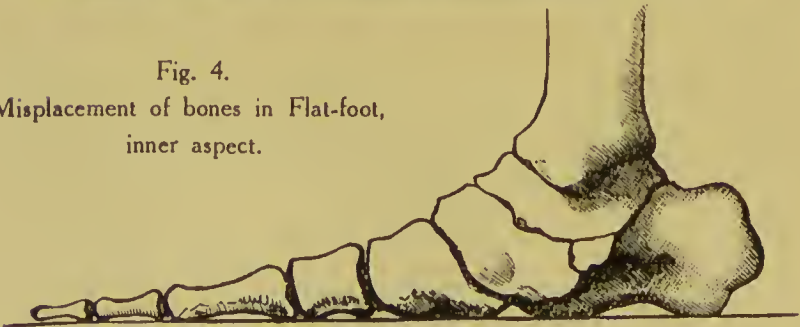


Fig. 4.
Misplacement of bones in Flat-foot,
inner aspect.



Splay-foot.

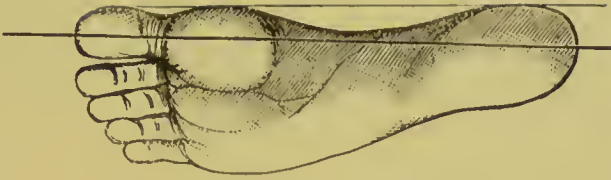


Fig. 5. Shape of normal foot. Plantar or sole aspect.
The lower line is "Meyer's" line, or true line.



Fig. 6. Position of bones in normal foot. Dorsal or instep aspect.
The lower line is "Meyer's" line or true line.

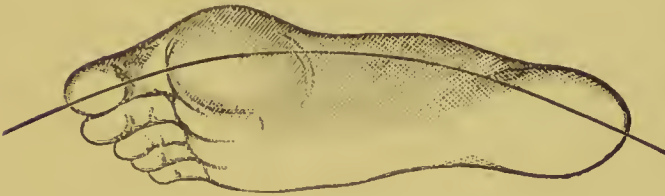


Fig. 7. Shape of Flat foot. Plantar or Sole aspect.
The curved line is the false line.

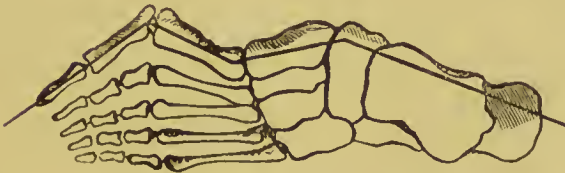


Fig. 8. Position of bones in Flat-foot. Dorsal or instep aspect.
The zig-zag line is the false line.

Flat-foot or

their place by a number of ligaments and tendons, and the whole of these elements become displaced downwardly and inwardly in the case of "flat-foot." The bones project inwardly in each foot towards each other, about the middle part of the foot, and the inner ankles tend to knock together ; the heel widens and flattens, and the sole of the foot on the ground describes, when drawn with a pencil, an oval form somewhat like a large kidney potato, a lettuce, or a long mangel-wurzel, showing little difference as regards the back and front, the right or the left.

In walking, the toes turn out, the knees fall inwards, the back stoops, the shoulders oscillate round and round, and backwards and forwards, causing an exaggerated use of the chest and shoulder muscles ; the arms and hands sway excessively ; the hips gyrate from side to side, and the body waddles. Varicose veins often appear on the leg ; in many cases excessive perspiration and foul smell in the feet, and, in females, troubles peculiar to their sex.

In walking, the heel rises from the ground with a rapid jerk, as if before it had done its work, in consequence of the lack of "bite" in the everted great toe.

The Causes of "Flat-foot."

VERY much has been written upon this subject of late ; and that very reasonably, seeing that the disease is of great frequency, and is steadily increasing. Some cases are congenital, although many such, supposed to be of "flat-foot" in infants, are by no means so, and only need time and proper treatment to throw off their supposed symptoms. Some persons become "flat-footed" from accident ; some trace it to paralysis ; the majority, however, acquire it in the earlier years of life, and never lose it or even amend it.

"Flat-foot," so called, is almost exclusively a disease of civilized people. It has been asserted, it is true, that negroes and natives of Hindostan are liable to it, but that the disease called "flat-foot" is ever found among those

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peoples who go bare-footed, is a thing very difficult or even impossible to prove. What is called a flat foot in a negro is not the disease known by that name among us—nor, in fact, a disease or deformity at all. The “flat-foot” of the European is quite a different matter, and it is that which is here spoken of.

A careful study of all the evidence within reach, together with the results of a habit of observation of the matter for many years, leaves no doubt whatever that the great cause of “flat-foot” is the malposition of the great toe, aggravated in some instances by the existence of a high heel which unduly elevates the back part of the foot, and in other cases by foot clothing of a hard and unyielding nature. The latter two causes are not, however, of such importance as the first, although this remark is made under due reserve, as it is sometimes difficult to assign its relative value to each element that combines to cause an evil.

Many cases of “flat-foot” occur among butlers, who habitually wear a foot covering which is both pliant and almost heelless.

The malposition of the great toe is that to which the mischief is traceable in almost every case. This malposition consists in the great toe bending out of its true straight line or direction, and pointing towards the others, even overlapping one or more of the others, or crowding the other toes by taking the space which belongs to them. This malposition is sometimes only that in which the toe lies when clothed ; when naked it approximates to its true place. In the majority of cases, however, it is more or less rigidly fixed in the wrong position by the deformity of its principal joint and the contraction of some of its muscles. In both cases, however—the first being that mostly of young people, and the latter being more that of older people—the case is as thus described.

This malposition is in all cases induced, acquired, and artificial. At birth, the child's big toe is separated

from the others in a marked way, and points inwards. The clothing of the foot, beginning with the stocking or sock, commences the evil of inverting the great toe, and thus the pernicious treatment of that unhappy member begins at an early age.

It is necessary to insist with considerable emphasis upon this point, in consequence of the fact that so many surgeons and others who are called upon to advise in such cases either ignore the point or do not recognize its importance.

What are its Consequences and Results ?

AMONG the first consequences of a disease or a deformity, and that which makes it especially repugnant to those who possess it, is *pain*. This, in the affection in question, is very severe, especially in the first stages. The pain at this time across the centre of the foot, and immediately under the leg, is very considerable, and renders walking difficult.

The next ill-feature is *weakness*. The foot of mankind is by nature an organ of exceeding strength, and of great capacity of endurance—much more so than is visibly perceptible. It has enormous gifts of strong and beautiful movement, and of sustaining and propelling power. Let its inner side, however, be broken down, and its weakness is at once felt, and the weight-carrying power is diminished by one-half.

The muscular power of a man is calculable at so many pounds weight lifted a foot high ; and by this method of measurement, the diminution of strength of a flat-footed man, multiplied by the number of all those so afflicted is in a populous nation, a subtraction of enormous volume from the physical power of the whole community.

This weakness, moreover, is not confined to the foot, but extends itself to the legs, the back, and the shoulders.

Splay-foot.

Ugliness.—The well-formed foot is a beautiful object; “flat-foot” is simply destructive to beauty—and this loss of beauty communicates itself to the motions of the foot and body, which become awkward, mechanical, and ungraceful.

The common expression “splay-footed” indicates the ordinary view taken by onlookers. The toes turn out, and the back part of the foot is as wide or wider than the front.

Foul Smell.—The flat-footed person has generally a foul-smelling foot. The perspiration is excessive, rotting the stocking, the lining of the boot or shoe, and the inner stitching of the same, causing the soles and other several parts of it to separate. The heat of the foot is at times very great.

“Flat-foot” frequently induces headache, spinal curvature, indigestion, bad sight, diminution of the chest cavity, drooping shoulders, knock knees, and, in females, troubles peculiar to their sex.

It incapacitates from following many callings in life; makes standing, and labour requiring standing, very irksome. It is a bar to all branches of the Royal and public services, such as the army, navy, police, postal, civil, and railway services. Although to the discredit of some of these services, they clothe the feet of their men so that they often acquire “flat-foot.”

It often induces varicose veins—indeed, with pronounced “flat-foot” it is impossible for the blood vessels of the lower leg to perform their functions in a proper manner.

As an example of the loss of moral tone induced by “flat-foot,” the portrait, shoe, and skeleton of O'Brian, the Irish giant, in the museum of the Royal College of Surgeons, show him to have acquired everted great toe with “flat-foot.” This poor fellow, deprived of the proper use of his feet and legs, which were poorly developed, took to drink, and died before he reached his twenty-fifth year.

Flat-foot or

This Goliath was slain, not by slings and stones, but by shoes and stockings.

What is its Cure ?

PRACTICALLY, the foot is its own cure. That which prevents also forms the remedy. The proper exercise of the muscles of the foot will effect a complete renovation in nearly every case of "flat-foot."

It must here, however, be observed and insisted upon with emphasis, that there can be no such proper exercise of the muscles of the foot when the foot is clothed in the conventional manner; nor can any amount of exercise, nor any variety of exercise, effect a cure if the true functions of the foot muscles be hindered or impeded.

It is to be observed that the matter of prime importance, and the most essential feature, is that the big toe shall occupy its true position, namely in a straight line forwards, preferably slightly inwards, that is, pointing the right great toe to the left, and the left great toe to the right sides respectively, and not in the least degree in each case in the opposite direction.

The accompanying drawing illustrates the true position of the foot and leg in walking.

The stockings or socks to be divided or digitated, and the boots or shoes to be Natureform; the great toe to be kept in its true position by a toe post when it is misplaced. The soles should be flexible; the heels low.

It is not recommended, if any heel is worn, that it should be elongated, or that it should extend anyway under the hollow portion of the foot. Under that hollow



Fig. 9.

Splay-foot.

portion are a considerable number of nerves, muscles, and small blood-vessels, and it is necessary they should not be pressed. Injury to them by pressure may retard a cure.

For this cause, and also for the reason that they are useless, it is necessary to **avoid** the use of valgus pads or wedges, made of cork, indiarubber, felt, iron, steel, leather, or of any combination of these materials, placed under the hollow of the foot.*

It is also undesirable and unnecessary to raise the heel, if any is worn, on the inner side of the boot or shoe, or to raise the sole of the boot on the inner margin, under the great toe, by putting a wedge of stiff leather between the soles at that point. The need is that the pliability of the boot or shoe at that point be increased, and not diminished. Neither is it desirable that stiffened sides be added to the leg of the boot. On the contrary, flexibility should be promoted there. Leg-irons should also be discarded.

In many cases of "flat-foot" of long standing, the greater part of the bones of the foot and leg are not only out of position, but out of form, and also firmly fixed together in a more or less rigid mass, from the great toe backwards.

To break up this rigidity and restore form is necessary ; and for this purpose, the great toe well exercised in its true position is generally sufficient, with, to some extent, the auxiliary action of the smaller toes.

*" For the last three years I have discarded pads altogether. "—BERNARD ROTH, *Flat-foot*, p. 53.

" Pads or springs for the purpose of supporting the arch should be avoided. In proportion as they press it upwards, they press upon and paralyze the muscles of the sole. "—T. S. ELLIS, M.R.C.S., *The Human Foot*, p. 106.

" The objection to its use is that it is unnatural and exercises injurious pressure upon the ligaments and bones. "—J. W. WALSHAM, *Deformities*, p. 457.

" The supports that have been ordinarily used for flat-foot do not fulfil the conditions. "—ROYAL WHITMAN, M.D., New York, *A Study of the Weak Foot* (Appleton's, New York).

Flat-foot or

Surgical operations with the knife or saw, or forcible wrenchings of the foot are unnecessary, and some of them hazardous and even worse; the rightly directed muscular force of the sufferer's own foot and leg being quite competent to the task in view.

When it is considered that the muscles of this portion of the foot—that is, of each foot—are capable of bearing and propelling with great rapidity three times the weight of the body which owns them, their regular action, moment by moment, in the true manner as before described is capable of overcoming the most rigid condition, and of restoring the elasticity of the foot completely—only be it observed, the great toe lever must be rightly placed, and maintained in that right place.

It should be borne in mind that as “flat-foot” is curable by these means, the numerous rejections of recruits desiring to enter public services, on account of this deformity, are wholly unnecessary, as nearly everyone is capable of cure in a reasonable time.

It should also be remembered that as “flat-foot” never stands alone, as indeed it cannot, but is also preceded by some other affection, and is also accompanied by some other disorder which flows from it, that remedy which removes the “flat-foot” amends the other conditions as well.

As regards exercise, it may be said that although certain exercises, as raising the body frequently on the toes and letting it down



Fig. 10.

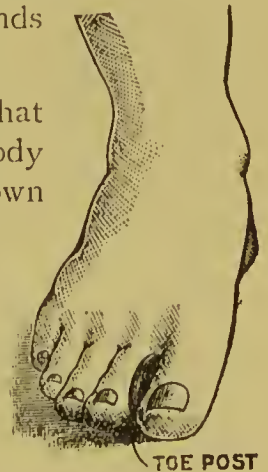


Fig. 11.

Splay-foot.

again may be useful, yet simply walking does the same thing, in a way involving no constraint, and to walking may be added riding with the toes inturned and the stirrup across the tread of the foot, not further back, gymnastics, dancing, and bicycling, provided that in each of these forms of exercise the foot be clothed in the manner previously laid down.



Fig. 12.

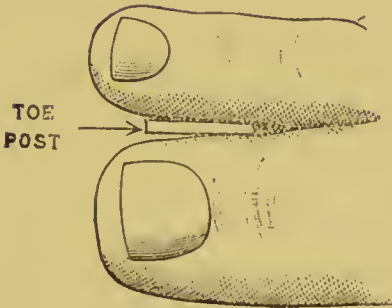


Fig. 13.



Fig. 14.

Rigidity.

IN cases of severe rigidity of the foot, the effect of muscular action in breaking up the same may, with some

advantage, be aided by manipulation, massage, kneading, and the hot air or water bath, preferably the former.*

Prevention.

A FEW words as to prevention. It cannot be too earnestly enforced that the seeds of foot trouble of many kinds are sown in the earliest days of childhood, although the complete development of the mischief may not appear till years are further advanced. Yet cases of breakdown of feet are constantly being met with, even in very young children.

IT should, therefore, be a constant study to give the child, from its very earliest days, even before it walks—and constantly afterwards—both shoes and socks that conform to the natural shape of the foot. The conventional type of both these articles, as in common use is, despite the frequent and reiterated teaching that is going out on this subject, still as bad as can well be, and is one of the most fruitful causes of disease and deformity among the long catalogue of evil customs to which society clings.

It is of the first importance that not only should the child's shoe be properly modelled, but that the sock or stocking should have a separate place for the great toe. It is remarkable how young children manifestly enjoy this arrangement.

Hosiery of this type is being now strongly recommended by all the chief writers upon the hygiene of the human foot, and it is more essential that it should be used in childhood than at any other period.

The foregoing Appliances and Methods

are being constantly prescribed for their patients by leading Metropolitan surgeons with successful results.

* To those suffering from extreme rigidity of the foot, the method and facilities for obtaining the use of the Hot-air Foot Bath will be indicated, if desired, upon application.

Splay-foot.

It is necessary to persevere in the use of them, especially if the affection be of long standing, and to bear in mind that an affliction which has been long in developing, cannot be amended in a very short time.

It is also to be observed that it is better to have more frequent renewals of the goods than to be constantly repairing old ones, as the boots lose their curative power by being worn too long.

After a considerable amendment or a complete cure has been accomplished, it is strongly urged that continuous use of the same kind of boots be observed, to prevent possibility of a relapse, and it is also necessary to use them exclusively, and not to exchange them for other kinds.

The Boots and Stockings etc., are of the best pattern for the sound foot, as well as for those which are subject to deformity and disease.

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